



Recommendations for the Prevention and Management of Chlamydial Infections

Chlamydia trachomatis infections are the most commonly reported notifiable disease in the United States

Chlamydia trachomatis is also the bacterial sexually transmitted disease (STD) most frequently reported to the Division of STD Prevention of the Massachusetts Department of Public Health



Chlamydia trachomatis is the **most prevalent bacterial STD in adolescents** in the United States, as well as in Massachusetts



Background and Rationale for Screening

Chlamydia trachomatis is the bacterial STD most frequently reported to the Division of STD Prevention of the Massachusetts Department of Public Health (DPH) and is also the most prevalent bacterial STD among adolescents¹. In the United States, the prevalence of *Chlamydia trachomatis* among inner city adolescent females can be as high as 31%, with many sites reporting more than 10%^{2,3,4,5}.

A full 75% of women and 50% of men with chlamydial infections are asymptomatic. Up to 40% of women with untreated chlamydial infection will develop pelvic inflammatory disease (PID)⁶. The sequelae of PID can include ectopic pregnancy, infertility, and chronic pelvic pain, often resulting in multiple surgical interventions. The occurrence of infertility increases with the number of episodes of PID, e.g., 8% after one episode, 20% after two and 40% after a third⁷. Untreated chlamydial infections also affect newborns; up to 2/3 of neonates born to infected mothers will be colonized after delivery. Of these, up to 30% will develop pneumonia. Overall, from 30% to 50% of infants born to infected mothers will develop conjunctivitis⁸.

Outcome research has demonstrated that screening women for *Chlamydia trachomatis* can reduce the incidence of PID by more than 50% in the course of one year⁹. Therefore, implementing a screening strategy is crucial for the prevention of upper-genital-tract infections and as well as for the prevention of transmission to a newborn or to sexual partners. Screening is especially critical for early detection and treatment among adolescents. **Young age is the single most important predictor of chlamydial infections¹⁰.**

Age-based screening recommendations for *Chlamydia trachomatis*

	Sexually active women	Sexually active men
≤25 years of age	<p><u>Non pregnant:</u> Screen for chlamydia once a year. See page 6 for special considerations when caring for adolescents.</p> <p><u>Pregnant:</u> Screen for chlamydia in the first and third trimester.</p>	<p>Consider screening for chlamydia once a year. See page 6 for special considerations when caring for adolescents.</p>
>25 years of age	<p><u>Non pregnant:</u> Screen at least once a year if at risk*.</p> <p><u>Pregnant:</u> Screen in the first and third trimester if at risk*.</p>	<p>Consider screening for chlamydia once a year if at risk*.</p>

* Risk factors include: not using condoms correctly or consistently, new or multiple sex partners in the last three months, new or multiple sex partners since the last test, infected with another STD, prior history of STD.

The age-based chlamydia screening recommendations for women are consistent with those of the **US Centers for Disease Control and Prevention (CDC)**, the **US Preventive Services Task Force (USPSTF)** and the **Health Employer Data and Information Set (HEDIS)** performance measure expectation. Routine screening of sexually active adolescent and young women is also recommended by the **American Medical Association (AMA)**, the **American College of Obstetricians and Gynecologists**, the **American Academy of Pediatrics**, the **American Academy of Family Physicians** and several other primary care clinical specialty organizations.

Recent data have shown that the prevalence of asymptomatic infections in men is similar to that in women in many settings, making a compelling argument to screen males who can represent a significant source of maintenance and spread of chlamydial infection. The cycle of infection and re-infection can be broken if an independent effort to detect asymptomatic chlamydial infections in men at risk is undertaken^{1,11,12}.

Diagnostic Testing Issues

The nucleic acid amplified tests (NAAT) are the most sensitive tests for the detection of *Chlamydia trachomatis*. The following are the CDC recommended testing approaches¹³:

- For women for whom a pelvic examination is indicated, **the preferred test is an endocervical NAAT** because of its high sensitivity and specificity. **Use urine testing with a NAAT in the setting where a pelvic examination is not scheduled, acceptable, indicated or routinely performed.** If NAATS are not available, unamplified nucleic acid hybridization tests (DNA-probe), enzyme immunoassays (EIA) and direct fluorescent antibody tests (DFA) performed on an endocervical specimen are acceptable, albeit less sensitive, alternatives.
- For men, a urine-based NAAT is recommended**, and preferred over a urethral sample (often unacceptable to males). If this is not available, a urethral sample (if acceptable to the patient) tested with a non-NAAT (DNA-probes, EIA, DFA) or culture is acceptable. A leukocyte esterase test (LET) on the first 10-15 cc of fresh unspun urine, followed by chlamydia testing if positive, is a less sensitive alternative.

Recommendations for taking a sexual history

A sexual history should be taken on every patient during visits when he or she presents:

- for a periodic examination and health assessment
- with signs and symptoms associated with the presence of an STD
- as a contact to a person infected with an STD
- for screening and
- for adolescents at routine visits.



Sexual history interview recommendations

Interview the patient **alone** or with an **unrelated medical interpreter/chaperone as appropriate**.

Make no assumptions about the patient's sexual behavior based on his or her marital, socioeconomic, or educational status.

Explain why you are taking a history. Acknowledge the sensitive nature of the questions, especially if, based on the patient's cultural background, there are taboos about discussing sexual behavior at all, with strangers, or with members of the opposite sex.

Explain that sexual-history-taking is done with every patient so the patient does not feel singled out.

- Use words that the patients will understand and **be clear**; consider the patient's education and literacy level.
- **Use open-ended questions.**

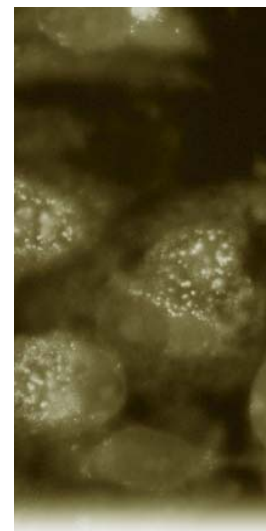
When first asking about sexual partners, consider starting with the following phrase: **"Tell me about your sexual partners."** Inquire about gender of partners.

- Inquire about the **type of sexual activity** (oral, vaginal, anal) for all sexually active patients.

- Ask about condom use (or dental dam). Consider starting with open-ended questions such as: **"What's your experience been with condom use (dental dams)?"** Then further explore circumstances for use/non-use, condom failure, barriers to use, etc.

Be nonjudgmental and sensitive about the answers you receive. When asking about or identifying symptoms, ask the patient about his or her interpretation of the cause of the symptoms.

Depending on the patient's belief system, he or she may have an explanation of his or her symptoms that differ from yours. Be respectful of these differences.



Treatment

CHLAMYDIAL INFECTIONS		
ADULT	<ul style="list-style-type: none"> Azithromycin 1 g orally single dose OR Doxycycline 100 mg orally 2 times a day for 7 days 	<ul style="list-style-type: none"> Erythromycin base 500 mg orally 4 times a day for 7 days OR Erythromycin ethylsuccinate 800 mg orally 4 times a day for 7 days OR Ofloxacin¹ 300 mg orally 2 times a day for 7 days OR Levofloxacin¹ 500 mg orally once a day for 7 days
CHILDREN		
≤ 45 KG ----->	<ul style="list-style-type: none"> Erythromycin base or ethylsuccinate 50 mg/kg/day orally divided into four doses daily for 14 days² 	
≥ 45 KG AND < 8 YEARS OF AGE ----->	<ul style="list-style-type: none"> Azithromycin 1 g orally single dose 	
≥ 8 YEARS OF AGE ----->	<ul style="list-style-type: none"> Azithromycin 1 g orally single dose OR Doxycycline 100 mg orally 2 times a day for 7 days 	
PREGNANCY	<ul style="list-style-type: none"> Erythromycin base 500 mg orally 4 times a day for 7 days OR Amoxicillin 500 mg orally 3 times a day for 7 days 	<ul style="list-style-type: none"> Erythromycin 250 mg orally 4 times a day for 14 days OR Erythromycin ethylsuccinate 800 mg orally 4 times a day for 7 days (or 400 mg 4 times a day for 14 days) OR Azithromycin 1 g orally single dose

¹ Quinolones are contraindicated in pregnant women. No joint damage attributable to quinolone therapy has been observed in children treated with prolonged ciprofloxacin regimens. Thus children who weigh ≥ 45 kg can be treated with any regimen recommended for adults.

² The efficacy of treating neonatal chlamydial conjunctivitis and pneumonia is about 80%. A second course of therapy may be required. An association between oral erythromycin and infantile hypertrophic pyloric stenosis (IHPS) has been reported in infants aged less than 6 weeks treated with this drug. See CDC guidelines for more information.

- **Single-dose observed therapy of chlamydial infections with 1g of azithromycin is preferable to ensure maximum compliance.**
- Patients should be instructed to abstain from sexual intercourse until they and their sex partners have completed treatment: seven days after a single-dose regimen or after completion of a seven-day regimen. They should also be counseled on condom use, STD/HIV prevention and HIV testing.
- Test of cure three weeks after completion of therapy is **not** recommended, except following treatment during pregnancy or anytime that therapeutic compliance is questioned. However, **the CDC recommends that all women with chlamydial infections be re-screened 3 to 4 months after treatment.** This is especially important for adolescent women who are at highest risk of re-infection¹⁴.

Recommendations for the management of sexual partners

Sexual partners of persons infected with *Chlamydia trachomatis* should be treated.

Sexual partners of persons infected with *Chlamydia trachomatis* should be treated. Health care providers should inform infected patients of the following: sex partners should be evaluated and treated if they had sexual contact with the patient during the 60 days preceding the diagnosis of chlamydia. The most recent sex partner should be evaluated and treated even if the time of the last sexual contact was more than 60 days before the diagnosis. The patient can do partner notification. The provider or state public health department personnel (disease intervention specialists) can also perform partner notification upon consent of the infected patient.

Partners should be administratively managed in one of the three following ways:

1. The partner can be referred to his or her own primary care provider.
2. The partner can be seen by the provider giving care to the infected patient.
3. The partner can be referred to the nearest state-funded STD clinic, if the clinic is within reasonable distance.

Reporting

Cases of *Chlamydia trachomatis* (defined as a positive laboratory test for *Chlamydia trachomatis*) **should be reported to the Division of STD Prevention, DPH**, as should other STDs, according to the Massachusetts General Laws and Regulations. This is crucial for disease control.

Special considerations when caring for adolescents

Screening recommendations

- Screening is especially critical for early detection and treatment in this population. In adolescent populations with a high prevalence of *Chlamydia trachomatis*, screening every six months may be appropriate.
- Repeat screening 3 to 4 months after treatment. Consider retesting earlier, if partner treatment cannot be established.
- **Use urine-based screening** for women when a pelvic examination is not indicated, scheduled or routinely performed¹⁵.
- Screen carefully for substance use and other risk behaviors that are more prevalent in adolescents than in adults. These behaviors put the adolescent at risk for poor adherence to recommendations and therefore STDs.



Issues of confidentiality in adolescents

Public-health policy and Massachusetts law stipulate that any minor can independently give informed consent and receive confidential medical care for the diagnosis and treatment of STDs.

Parental consent is not required. Health-care providers seeing adolescent patients should provide assurance regarding the confidential nature of the visit, the testing for *Chlamydia trachomatis*, and any treatment received. **Arrangements within the health care facility should be made to ensure confidentiality for every aspect of the visit, including billing, laboratory fee** for the STD tests, notification of test results, and provision of treatment.

- Adolescents are more likely to confide in providers if they know their conversations will be kept confidential.
- If possible, providers should talk to children before they reach adolescence, in front of their parents, about maintaining confidentiality when the child does become an adolescent and begins to see the doctor alone.
- The provider can help an adolescent determine how to and what to tell his or her parent about his or her medical condition. The provider may also be helpful in encouraging parents to give the teenager some privacy.

- It may also be helpful to bring the parent(s) into the office after coaching the adolescent about how to talk to his or her parent(s).

Education Issues

- Written and verbal information provided to adolescents regarding *Chlamydia trachomatis* should be developmentally appropriate and culturally sensitive.
- Adolescent patients may require extra assistance in negotiating the health-care system, such as arranging payment (if the adolescent does not want charges for visit billed to parent's insurance), scheduling follow-up appointments, and discussing diagnosis with partner(s). Having a prepared letter the patient can give to a partner may be helpful.
- Explain to adolescents the importance of abstinence as a method of STD prevention. If they are sexually active, advise them to be aware of their partners' sexual history, to avoid sexual contact with high risk partners, to limit the number of sexual partners and to use a condom correctly (explain how) **every** time they have a sexual encounter to reduce the risk of STDs.

Treatment of partners

Exclusively pediatric practices must consider how to facilitate treatment for adult partners of their adolescent patients.

SCREENING FOR CHLAMYDIAL INFECTIONS CAN REDUCE THE INCIDENCE OF PELVIC INFLAMMATORY DISEASE



These guidelines have been endorsed by the Bureau of Communicable Disease Control of the Massachusetts Department of Public Health, the Division of Medical Assistance, Neighborhood Health Plan, Boston Medical Center HealthNet Plan, Network Health, Fallon Community Health Plan, and the Massachusetts League of Community Health Centers.

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